

CLAIMS

I claim:

1 1. An optical communication system having adjustable operational settings
2 to accommodate a plurality of modes of operation, the system comprising:

3 a controller adapted to communicate an indicator signal based on a selected

4 mode of operation; and

5 a transimpedance amplifier having at least one adjustable operational setting,

6 the transimpedance amplifier in communication with the controller

7 for receiving the indicator signal and configured to adjust the at least

8 one adjustable operational setting based on the indicator signal.

1 2. The system of claim 1, wherein the transimpedance amplifier comprises:

2 a mode detection module adapted to receive the indicator signal and

3 determine a mode of operation based on the indicator signal; and

4 a settings control module in communication with the mode detection module,

5 the settings control module coupled to the transimpedance amplifier

6 circuit for adjusting at least one of the adjustable components based

7 on the determined mode of operation.

1 3. The system of claim 2, wherein the mode detection module determines

2 the mode of operation by comparing the indicator signal to one or more reference

3 voltages.

1 4. The system of claim 2, wherein the mode detection module receives the
2 indicator signal during a non-operational period of the transimpedance amplifier.

1 5. The system of claim 2, wherein the indicator signal is a digital signal, and
2 the mode detection module includes digital circuitry for determining the mode of
3 operation.

1 6. The system of claim 2, wherein the mode detection module determines
2 the mode of operation by demodulating the indicator signal from a voltage input received
3 from an external source.

1 7. The system of claim 2, wherein the mode detection module comprises
2 means for detecting the mode of operation based on the indicator signal.

1 8. The system of claim 1, wherein the controller is configured to receive
2 information related to the mode of operation for the transimpedance amplifier, the
3 controller including an indicator generator for generating the indicator signal based on
4 the mode of operation.

1 9. The system of claim 8, wherein the controller further includes a digital to
2 analog converter for generating an analog indicator signal.

1 10. The system of claim 1, wherein the transimpedance amplifier includes a
2 bias voltage interface for receiving a bias voltage, the controller communicating the
3 indicator signal to the transimpedance amplifier as a bias voltage through the bias
4 voltage interface.

1 11. The system of claim 10, wherein the indicator signal is within a
2 permissible range of bias voltages for the transimpedance amplifier, the mode detection
3 module determining the mode of operation by comparing the indicator signal to one or
4 more reference voltages.

1 12. The system of claim 1, wherein at least one adjustable operational setting
2 is transimpedance gain.

1 13. The system of claim 1, wherein at least one adjustable operational setting
2 is bandwidth.

1 14. The system of claim 1, wherein at least one adjustable operational setting
2 is selected from a group consisting of: DC offset, signal rise time, signal fall time, power
3 consumption, and output impedance.

1 15. A transimpedance amplifier having adjustable operational settings, the
2 transimpedance amplifier comprising:

3 an electrical interface for coupling to a receive diode;
4 a transimpedance amplifier circuit in communication with the electrical
5 interface for converting a current from the receive diode into an
6 output voltage, the transimpedance amplifier circuit including one or
7 more adjustable components, the adjustment of which affects at least
8 one operational setting of the transimpedance amplifier; and
9 a settings control module coupled to the transimpedance amplifier circuit for
10 adjusting at least one of the adjustable components.

1 16. The transimpedance amplifier of claim 15, further comprising:
2 a mode detection module adapted to determine a mode of operation for the
3 transimpedance amplifier, the mode detection module coupled to the
4 settings control module for communicating the determined mode of
5 operation, wherein the settings control module adjusts at least one of
6 the adjustable components based on the determined mode of
7 operation.

1 17. The transimpedance amplifier of claim 16, wherein the mode detection
2 module is adapted to receive an indicator signal and determines the mode of operation
3 based on the indicator signal.

1 18. The transimpedance amplifier of claim 16, further comprising:

2 a bias voltage interface coupled to provide the transimpedance amplifier
3 circuit with a bias voltage, the bias voltage interface further coupled
4 to communicate the indicator signal to the mode detection module.

1 19. The transimpedance amplifier of claim 18, wherein the bias voltage
2 interface provides the transimpedance amplifier circuit with a diode bias voltage for the
3 receive diode.

1 20. The transimpedance amplifier of claim 15, wherein at least one of the
2 adjustable components includes a means for adjusting the transimpedance gain of the
3 transimpedance amplifier.

1 21. The transimpedance amplifier of claim 15, wherein at least one of the
2 adjustable components includes a means for adjusting the bandwidth of the
3 transimpedance amplifier.

1 22. The transimpedance amplifier of claim 15, wherein at least one of the
2 adjustable components includes a means for adjusting the an operational setting selected
3 from a group consisting of: DC offset, signal rise time, signal fall time, power
4 consumption, and output impedance.

1 23. A transimpedance amplifier having one or more operational settings that
2 are adjustable based on a mode of operation for an associated optical communication
3 system, the transimpedance amplifier comprising:

4 means for receiving an indicator associated with the mode of operation;
5 means for detecting the mode of operation based on the indicator; and
6 means for adjusting at least one operational setting of the transimpedance
7 amplifier based on the detected mode of operation.

1 24. The transimpedance amplifier of claim 23, wherein at least one adjustable
2 operational setting is selected from a group consisting of: transimpedance gain,
3 bandwidth, DC offset, signal rise time, signal fall time, power consumption, and output
4 impedance.

1 25. A method for adjusting an operational setting of a transimpedance
2 amplifier based on a mode of operation for an associated optical communication system,
3 the method comprising:

4 receiving an indicator associated with the mode of operation;
5 detecting the mode of operation based on the indicator; and
6 adjusting at least one operational setting of the transimpedance amplifier
7 based on the detected mode of operation.

1 26. The method of claim 25, wherein the indicator is received as a bias
2 voltage for the transimpedance amplifier.

1 27. The method of claim 26, wherein the mode of operation is detected by
2 comparing the received indicator to at least one reference voltage.

1 28. The method of claim 26, wherein the mode of operation is associated
2 with a selected protocol.

1 29. The method of claim 26, wherein the mode of operation is associated
2 with a data rate.

1 30. The method of claim 26, wherein at least one adjusted operational setting
2 is transimpedance gain.

1 31. The method of claim 26, wherein at least one adjusted operational setting
2 is bandwidth.

1 32. The method of claim 26, wherein at least one adjusted operational setting
2 is selected from a group consisting of: DC offset cancellation, signal rise time, signal fall
3 time, power consumption, and output impedance.